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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,133	07/08/2003	Mary Morabito O'Neill	02W234	8119
7590 03/05/2009				
Raytheon Company Intellectual Property & Licensing, EO/E04/N119 2000 East El Segundo Boulevard P. O. Box 902 El Segundo, CA 90245				
EXAMINER				
CHAMBERS, TROY				
ART UNIT		PAPER NUMBER		
3641				
MAIL DATE		DELIVERY MODE		
03/05/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/615,133

**Applicant(s)**

O'NEILL ET AL.

**Examiner**

Troy Chambers

**Art Unit**

3641

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 3, 5, 7, 9 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6, 8 and 11-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

#### **DETAILED ACTION**

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

#### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the manner in which an external viewing location that is associated with a greatest threat of an attack on the aircraft must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification lacks antecedent basis for the phrase "determining an external viewing location that is associated with a greatest threat of an attack on the aircraft."

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 2, 4, 6, 8, 11-16 and 23-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

7. Claims 1, 2, 4, 6, 8, 11-16 and 23-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable

one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

8. Claims 1, 2, 4, 6, 8, 11-16 and 23-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 includes the following limitation that was added by amendment on 09/22/2005: "determining an external viewing location that is associated with a greatest threat of an attack on the aircraft." The specification never discloses an apparatus or steps for determining an external viewing location. Additionally, there are no steps or apparatus discloses that would determine whether the viewing location is "associated with a greatest threat of an attack." Moreover, it is not known what is meant or encompassed by the phrase, "greatest threat of attack". Which attack is the applicant referring to? How is it the greatest? How is it determined? How is the viewing location associated with said threat? The applicant appeal provides paragraph [0013] in an attempt to provide support for the offending limitation. However, this disclosure merely provides the desired location of the obscuring agent, not how the external viewing location is determined. In fact, the phrase "an attack" does not even appear in this portion of the specification.

***Claim Rejections - 35 USC § 102***

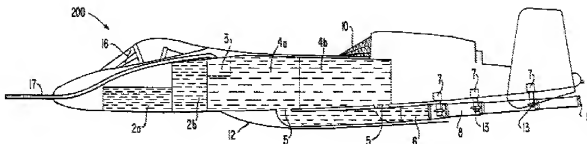
10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

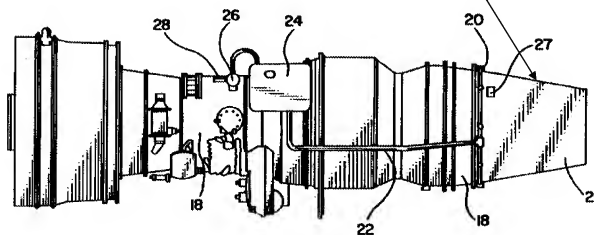
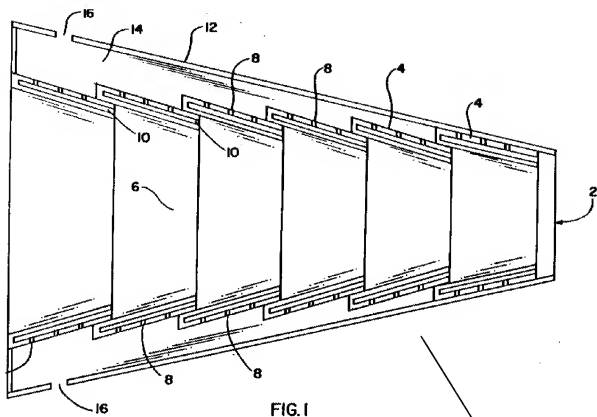
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 2, 4, 6, 11, 15, 16, 17, 18, 19, 22, 23, 24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5428954 issued to Cowan, Sr. (hereinafter "Cowan"). Cowan discloses an engine 10 for a transport aircraft. The heat created by the engine is inherently greater than 150 degrees Celsius. As discussed above, it is not known what is meant by an external viewing location associated with a greatest threat; nor is it clear how such a viewing location is determined. In any event, Cowan further discloses a source of water 33 that is injected around an airstream through ports as shown in Fig. 1. The ejection of water creates water vapor. The ejected water mixes with the exhaust material to further create an obscurant comprising water vapor and carbon dioxide.

1. Claims 1, 2, 4, 14, 15 and 16 are rejected under 35 USC 102(b) as being anticipated by U.S. 5549259 issued to Herlik. Herlik discloses a method of obscuring an aircraft from infrared detection from an external viewing location. Specifically, Herlik discloses an airtanker comprising a converted A-10 Thunderbolt aircraft for transporting a pilot and fire retardant. The A-10 inherently includes an auxiliary power source. The aircraft has two engines as shown in Figs. 1 and 3. The aircraft is provided with a source of obscuring agent comprising water (col. 8, ll. 12-15). The obscuring agent is ejected out of nozzle 9. A viewing location is established within the stream of fluid. The fire retardant can be generated on the aircraft (col. 8, ll. 7-16). The A-10 is not disclosed as having an infrared warning system or flares.



2. Claims 1, 2, 4, 15, 22, 23, 24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5269132 issued to Loucks. Loucks discloses a method for obscuring a transport aircraft from a serious threat of surface-to-air and air-to-air infrared guided missiles. A jet aircraft engine having a tailpipe is shown in Fig. 5. The tailpipe includes a nacelle covering forming a liquid cooling chamber with a plurality of cooling panels 4 as shown in Fig. 1. The cooling chamber is supplied with a coolant mixed with water (col 3, ll. 4-9) contained in a reservoir 24. The coolant is ejected from the reservoir 24 via coolant line 22 to the coolant chamber and into a cavity formed within the cooling panels 4. The coolant filled panels form a vaporous boundary layer between an external viewing location and the heat source, which comprises engine exhaust flowing from the aircraft. The device can be used on auxiliary engines as well as main engines. The aircraft is not disclosed as having a flare or early warning system. The coolant does not mix with the gas discharge.





***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-11, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admissions in the specification.

14. With respect to claim 1, applicant admits that the aircraft 30 in Fig. 1 is conventional. [0024]. Applicant's invention uses the admittedly conventional aircraft 30, therefore, it is inherent that there are hot regions that are greater than 150 °C. As discussed above, it is not known what is meant or encompassed by the phrase "determining an external viewing location that is associated with a greatest threat of an attack on the aircraft." However, while the applicant's specification does not mention the phrase or provide a description thereof, there is a disclosure of terrorist activity against aircraft. Applicant further admits that obscuring agents are created on an aircraft as natural by-products of the combustion process. (See, for example, paragraphs [0009], [0017], [0027], [0028]). The combustion by-products are ejected as exhaust from the engine. While the exhaust products are initially hot, it is known and admitted by the applicant that the by-products become cooler shortly after leaving the

engine environment. Any aircraft is a transport aircraft since the term "transport" means "to carry, move or convey from one place to another." Clearly, the aircraft 30 is at least capable of transporting at least a pilot from one location to another. The hot regions can a plume of hot gas just as it exits the aircraft engine. The carbon dioxide and water vapor are generated by the aircraft engines. As admitted by the applicant, the aircraft 30 is conventional, therefore, so is its auxiliary power unit 42. The auxiliary power unit 42 creates a plume of exhaust gasses as discussed above with the same obscuring effect. The same obscuring features are naturally produced by main engines 38. Alternatively, applicant further admits that it has been proposed to add water or other coolant to a combustion gas stream before it flows out of the engine. The admission does not disclose the convention aircraft as having flares and an active infrared threat warning system.

15. Claims 12, 13, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicants admission in the specification and in further view of US 4484195 issued to Shaffer. The admission discloses the means by which obscuring agents are ejected from an aircraft as discussed above. However, the admission does not discuss solid metal particles or materials being added. Shaffer discloses adding particles of aluminum stored on an aircraft with a turbine engine to the plume of exhaust gasses. At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the admitted prior art with the aluminum flakes of Shaffer. The suggestion/motivation for doing so would have been to blank out detection apparatus employing infra-red radiation.

16. Claims 12, 13, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowan and in further view of US 4484195 issued to Shaffer. Cowan discloses the means by which obscuring agents are ejected from an aircraft as discussed above. However, Cowan does not discuss solid metal particles or materials being added. Shaffer discloses adding particles of aluminum stored on an aircraft with a turbine engine to the plume of exhaust gasses. At the time of the invention, one having ordinary skill in the art would have found it obvious to provide Cowan with the aluminum flakes of Shaffer. The suggestion/motivation for doing so would have been to blank out detection apparatus employing infra-red radiation.

17. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission in view Cowan. The applicant's admission discloses an aircraft including an auxiliary power source. There is no prior art admission of ejecting an obscuring agent as claimed. Cowan discloses such a method as discussed above. At the time of the invention, one having ordinary skill in the art would have found it obvious to provide the aircraft disclosed by the applicant as being prior art with the obscure features of Cowan. The suggestion/motivation for doing so would have been to provide for the suppression of engine exhaust noise.

18. Claims 1, 2, 4, 6, 8, 12,13, 14, 15, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by the Space Shuttle ("shuttle") and the supporting documents cited herein. Any supporting documents used in the rejection are cited to show the inherent design features of the shuttle. The shuttle has remained the same for

about 30 years with the exception of O-ring and crew safety design changes that have no bearing on the applicant's claimed invention.

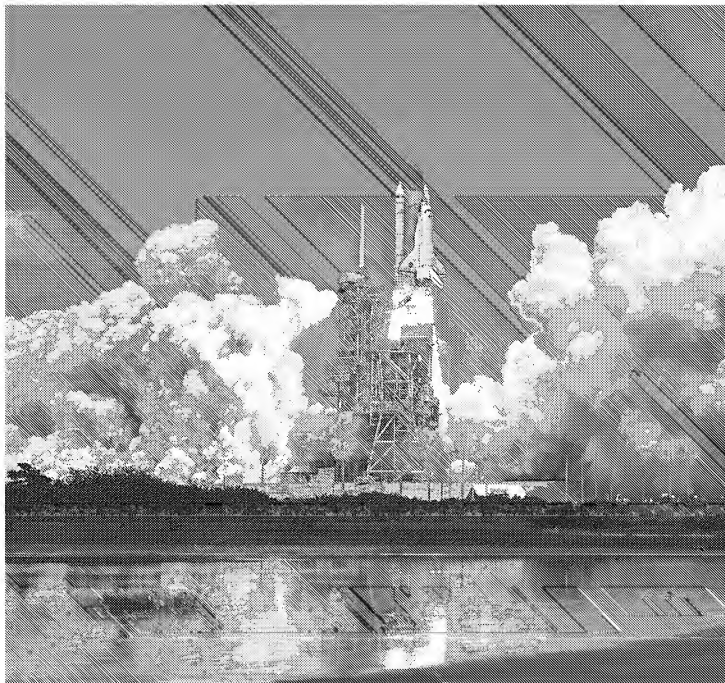
19. The shuttle has two sets of engines: main engines which are fueled by liquid propellants and solid rocket boosters (SRBs) that are fueled by solid propellant. During the lift-off procedure the shuttle's main engines are brought to 90 percent power, creating a plume with a temperature in excess of 150 degrees Celsius. A person standing under the engines or three miles away would be able to view the plume created by the engines. Also, as shown in the photographs, cameras are located at various positions to capture the launch. Once again, the phrase "determining an external viewing location that is associated with a greatest threat of an attack on the aircraft" is not only defective under 35 USC 112, first paragraph, but is also not understood. In any event, the cameras "determine" an external viewing location and can be used as a security measure as well since they can determine if a terrorist aircraft is attempting to intercept the Space Shuttle. Moreover, the claims do not require an attack but a viewing location that is *associated* with a greatest threat of attack. With that said, any viewing location is associated with a greatest threat of attack. The shuttle has a "source" of obscuring agent comprising liquid hydrogen; liquid oxygen and solid propellant (See any one of "Space shuttle main engine biography", "Solid Rocket Boosters", "How Space Shuttles Work" and "Space shuttle main engine"). At T minus 0 seconds the SRBs engines ignite the "source" of obscurant comprising solid propellant. As shown in the photos below, the combustion chamber and exhaust just immediate the engines is greater than 150 degrees Celsius and is followed by great clouds of exhaust

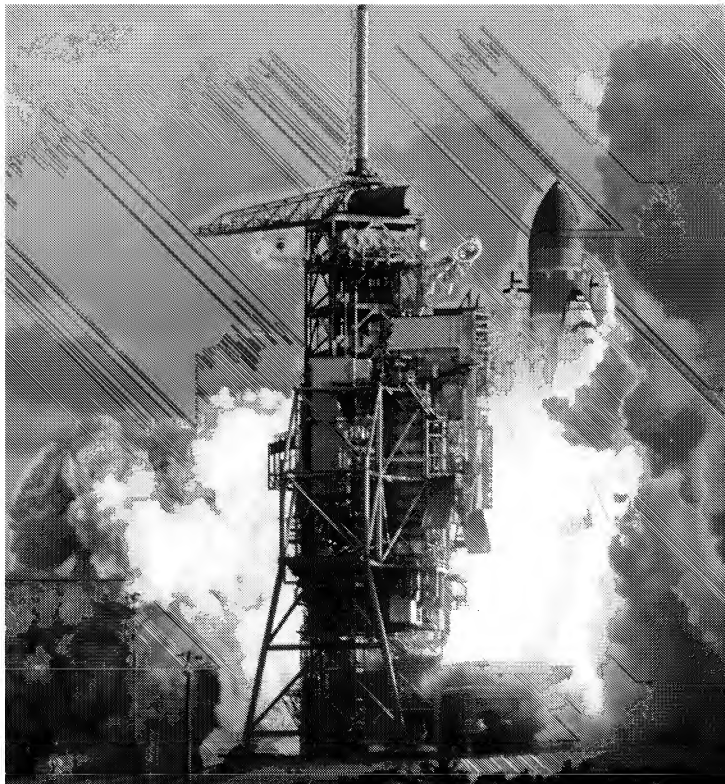
material. The exhaust plume that follows the space shuttle is 95 percent water (see nasa.gov document and news.bbc article) and remains in the atmosphere such that it eventually cools to below the hot region of the shuttle. As shown below, a viewer directly below or to the side of the shuttle during launch would have its view (infrared or otherwise) obscured by the clouds of obscuring agent.

20. With respect to claim 2, the shuttle transports equipment and astronauts into space.
21. With respect to claim 4, the hot region is a plume hot gasses flowing from just immediate the SRBs.
22. With respect to claim 6, the exhaust gasses are generated in the engines of either the SRBs or main engines.
23. With respect to claim 8, the exhaust gas is formed in the internals of the main or SRB engine compartments.
24. With respect to claim 12, Space Shuttle rocket exhaust include solid materials within the water vapor. (See news.bbc article).
25. With respect to claim 14, the shuttle has 3 main engines and 2 SRBs. The 2 SRBs are auxiliary power units. If the applicant disagrees then the examiner requests applicant provide structural differences between the SRBs and the claimed APUs.
26. With respect to claim 15, refer to the rejection of claim 1.
27. With respect to claim 23, the references provided do not disclose the shuttle having flares or infrared threat warning system.

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28. With respect to claim 24, the obscuring agent is ejected to the sides and rear of the shuttle.











***Conclusion***

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Troy Chambers whose telephone number is 571-272-6874 and whose email address is troy.chambers@uspto.gov. The examiner can normally be reached on M-F from 8 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone, can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Troy Chambers/  
Primary Examiner  
Art Unit 3641

/tc/

